K10 value vector instruction manual

1. Product technical indicators and specifications

enter	Rated voltage, frequency	Three-phase (4T series) 380V; 50/60HZ three-phase (2T series) 220V: 50/60HZ	
	Allowable voltage range	Three-phase (4T series) 320V ~ 460V Three-phase (2T series) 190V ~ 250V	
output	Voltage	4T series; 0～380V 2T series; 0～220V	
	frequency	V/ F control, simple vector control : 0.0 ~ 999.9HZ Advanced vector control , torque control : 0.5 ~ 300.0 HZ	
	overload capacity	110% long-term 150% 1 minute 180% 5 seconds	
control method		V/F control, simple vector control, advanced vector control, torque control	
Control characteristics	Frequency setting resolution	Analog input	0.1% of the maximum output frequency
		Digital settings	0.1HZ
	Frequency accuracy	Analog input	Within 0.2% of the maximum output frequency
		digital input	Within 0.01% of the set output frequency
	V/F control	V/F curve (voltage frequency characteristics)	Three ways: the first is a linear torque characteristic curve, the second is a square torque characteristic curve, and the third is a user-set V/F curve
		torque boost	Manual setting: 0.0 to 30.0% of rated output Automatic boost: automatically determine the boost torque according to the output current and combined with the motor parameters
		Automatic current limiting and pressure limiting	Whether during acceleration, deceleration or stable operation, the motor stator current and voltage are automatically detected and suppressed within the allowable range based on a unique algorithm to minimize the possibility of system fault tripping.
	Inductive vector control	Voltage frequency characteristics	Automatically adjust the output voltage-to-frequency ratio based on motor parameters and unique algorithm
		Torque characteristics	Starting torque: 100% rated torque at 5.0Hz (VF control) 150% rated torque at 1.0Hz (vector control)
		Current and voltage suppression	Full current closed-loop control, completely avoiding current impact, with complete overcurrent and overvoltage suppression functions
	Undervoltage suppression during operation	Especially for users with low grid voltage and frequent fluctuations in grid voltage, even if the voltage is lower than the allowed voltage range, the system can maintain the longest possible operating time based on a unique algorithm and residual energy allocation strategy.	
Typica	Multi-speed operation	7-segment programmable multi-segment speed control, multiple operating modes available.	

l functions	PID control RS485 communication	Built-in PID controller (frequency can be preset). Standard configuration RS485 communication function, multiple communication protocols optional, with linkage synchronous control function	
	frequency setting	analog input	DC voltage 0~10V, DC current 0~20mA (upper and lower limits optional)
		digital input	Operation panel setting, RS485 interface setting, UP/DOWN terminal control, and various combination settings with analog input
	output signal	Relay output	1 relay output (TA, TC), up to 17 meaning options
		Analog output	1 analog signal output, the output range can be flexibly set between 0~20mA or 0~10V, which can realize the output of physical quantities such as set frequency and output frequency.
	Automatic voltage stabilization operation	You can choose dynamic voltage stabilization, static voltage stabilization, or unstabilized voltage according to your needs to obtain the most stable operating effect.	
	Acceleration and deceleration time setting	0.1S～999.9min can be set continuously	
	brake: Energy consumption braking	Energy consumption braking starting voltage, hysteresis voltage and energy consumption braking rate are continuously adjustable	
	brake: DC braking	Stop DC braking starting frequency: 0.00~[F0.05] upper limit frequency Braking time: 0.0~30.0s; Braking current: 0.0%~50.0% of motor rated voltage	
	Low noise operation	The carrier frequency is continuously adjustable from 2.0KHZ to 20.0KHZ to minimize motor noise.	
	counter	One internal counter, convenient for system integration	
	run function	Upper and lower limit frequency settings, frequency jump operation, reverse operation limit, slip frequency compensation, RS485 communication, frequency increase and decrease control, fault self-recovery operation, etc.	

show	Operation panel display	Operating status	Output frequency, output current, output voltage, motor speed, set frequency, module temperature, PID setting, feedback value, analog input and output, etc.
		Alarm content	Output frequency, set frequency, output current, output voltage, DC voltage, module temperature and other operating parameter records at the latest fault
Protective function			Overcurrent, overvoltage, undervoltage, module failure, electronic thermal relay, overheating, short circuit, internal memory failure, etc.
environment	ambient temperature		-10° C~+40° C (The ambient temperature is 40° C~50° C, please use with derating)
	ambient humidity		5%～95%RH, no water droplets condensation
	surroundings		Indoor (no direct sunlight, no corrosion, no flammable gas, no oil mist, dust, etc.)
	altitude		Use with derating above 1000 meters, derate 10% for every 1000 meters

structure	Protection level	IP20
	cooling method	Air-cooled, with fan control
installation method		wall-mounted, cabinet

two, Installation and wiring of frequency converter

2.1 Installation Notes

danger 

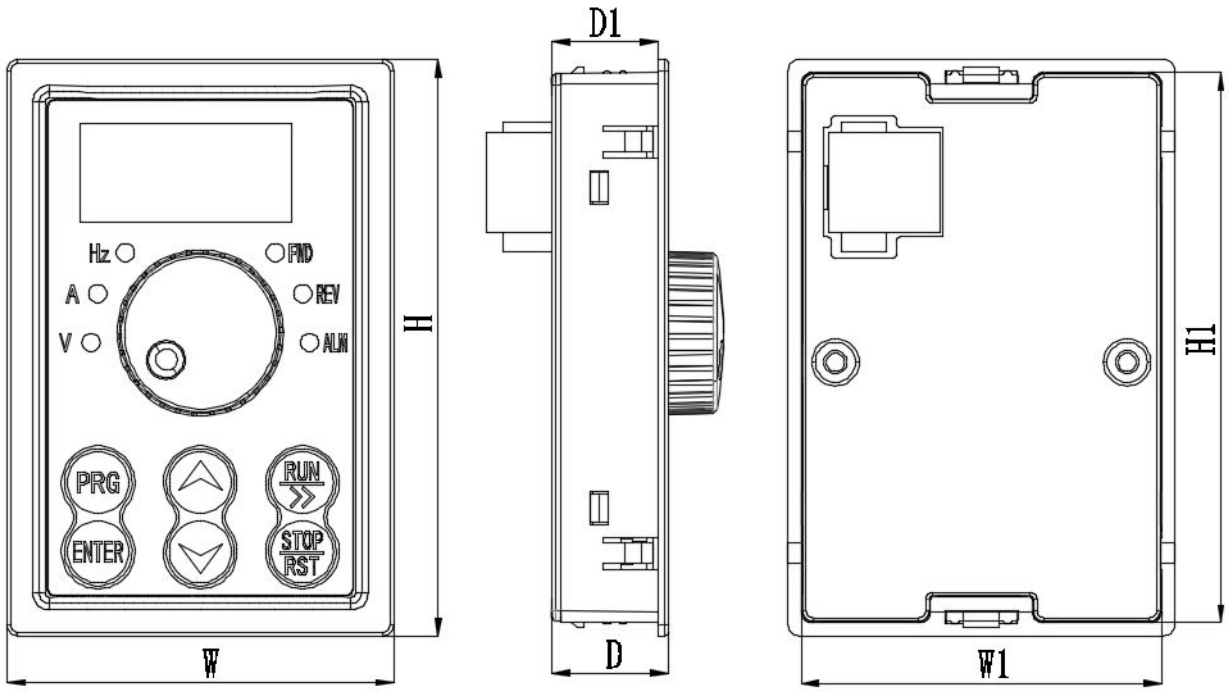
1. Before wiring, please confirm that the input power has been cut off.
There is a risk of electric shock and fire.
2. Ask electrical engineering professionals to do the wiring work.
There is a risk of electric shock and fire.
3. The ground terminal must be reliably grounded.
(380V class: special third type of grounding)
There is a risk of electric shock and fire.
4. After the emergency stop terminal is connected, be sure to check whether its action is effective.
Risk of injury. (The responsibility for wiring lies with the user)
5. Do not touch the output terminals directly. The output terminals of the frequency converterals.
There is a risk of electric shock and short circuit.
6. Before turning on power, be sure to install the terminal cover. When removing the cover, be .
There is a risk of electric shock.
7. After cutting off the power supply, wait another 5 to 8 minutes for the remaining power in thence.
Risk of residual voltage on electrolytic capacitors.
8. Non-professional technical personnel are not allowed to perform inspection and maintenance work.
There is a risk of electric shock.

 注意

1. Please confirm whether the power supply voltage of the incoming line is consistent with ther.
Risk of injury and fire.
2. Please connect the braking resistor or braking unit according to the wiring diagram.
There is a risk of fire.
3. It is best to use a screwdriver and wrench with specified torque to tighten the terminal.
There is a risk of fire.
4. Do not connect the input power cord to the output U, V, W terminals.
Voltage applied to the output terminals will cause internal damage to the inverter.
5. Do not remove the front panel cover. Only remove the terminal cover when wiring.
May cause internal damage to the inverter.

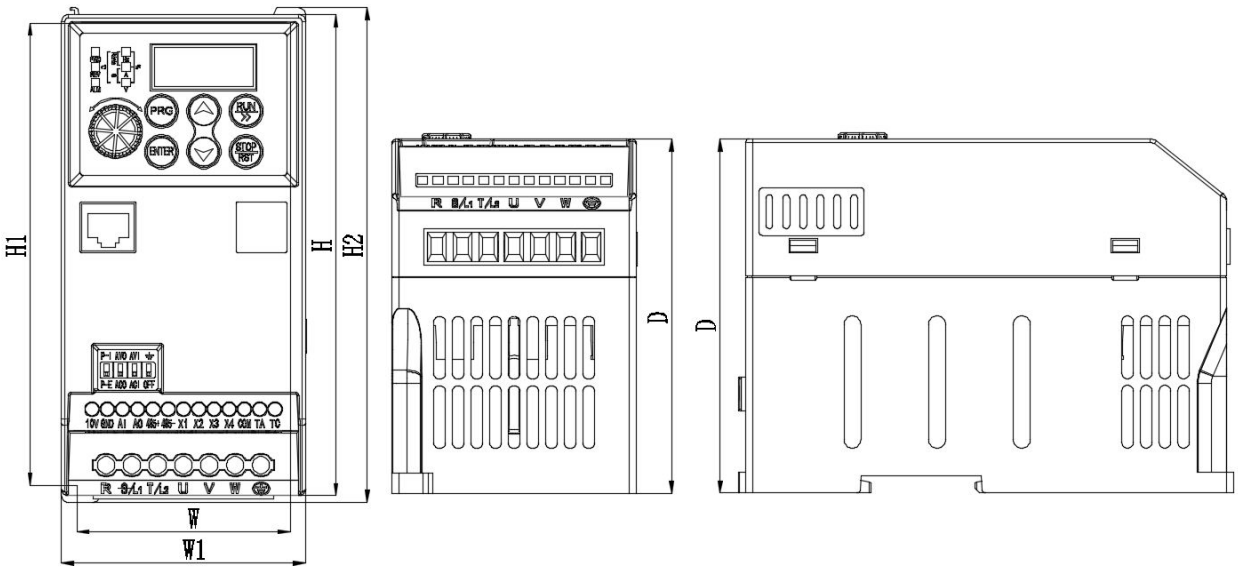
2.2 Outline drawing

a. Dimensions of external keyboard base



键盘底座开孔尺寸				键盘厚度	
W	W1	H	H1	D	D1
53mm	49.4mm	79mm	75.4mm	15.9mm	14.5mm

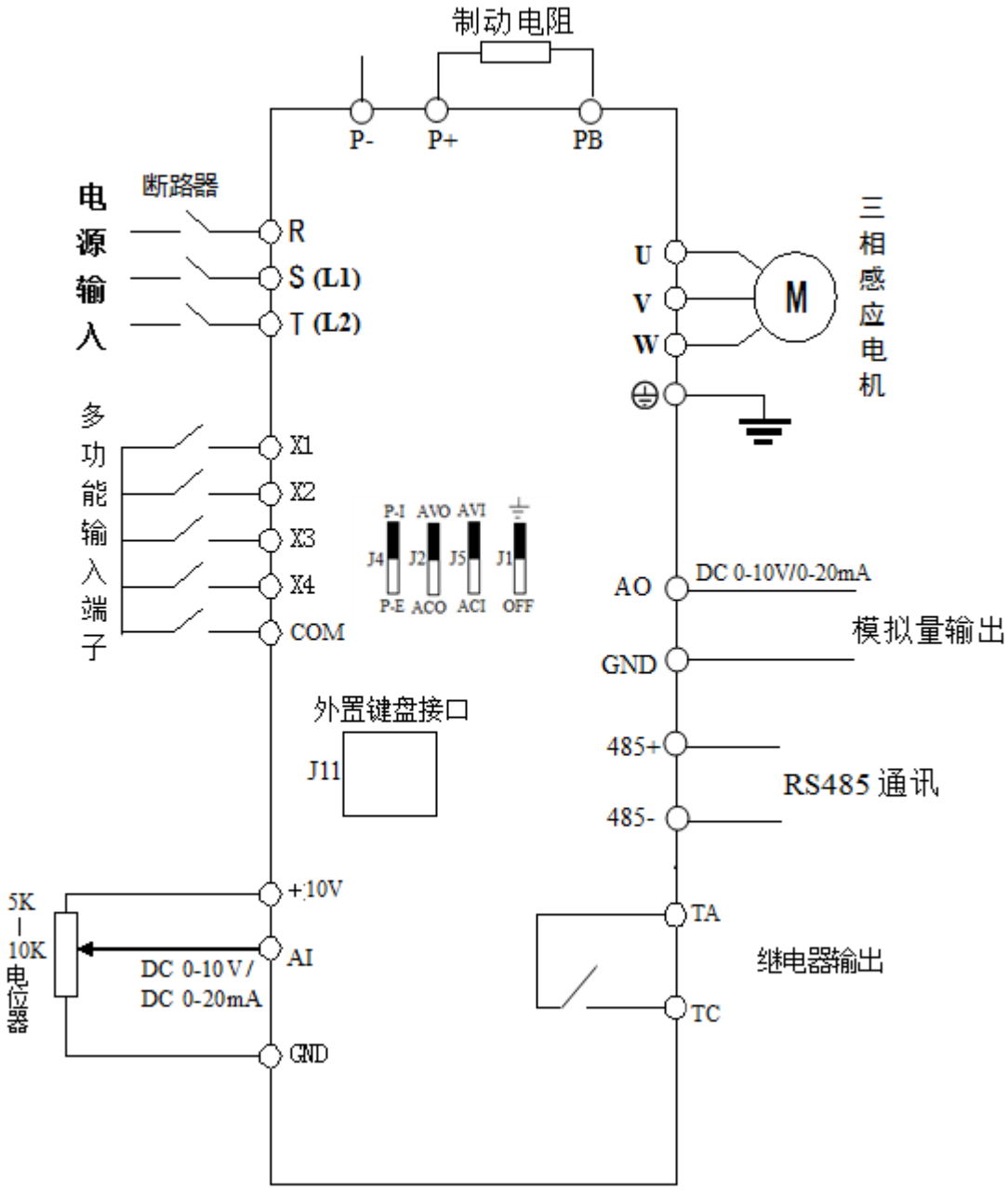
b. Overall dimensions of the machine



model	W (mm)	W1 (mm)	H (mm)	H1 (mm)	H2 (mm)	D (mm)	Mounting holes (mm)
	Installation dimensions		Peripheral dimensions				
0.4kW - 2.2kW _	63	72	142	136.5	146	104.5	4
3.7KW-5.5KW	78	87	18 2	172.5	-	126.4	4

2.3 Basic operation wiring

The inverter wiring part is divided into main circuit and control circuit. The user can lift the cover of the output/input terminal, and then the main circuit terminal and the control circuit terminal ca ' . The user must connect the w ircuit correctly according to the figure below.



2.4 Control circuit terminals

10V	GND	AI	AO	485+	485-	X1	X2	X3	X4	COM	TA	TC

2.5 **0.4KW - 2.2 KW** main circuit terminal

R	S/L1	T/L2	U	V	W	⏚

2.6 **3.7KW - 5.5 KW** main circuit terminals

R	S	T	P+	PB	U	V	W	⏚

2.7 **Instructions for main control board jumpers**

J1	
⏚ 档	Indicates that the main control board is grounded
OFF gear	Indicates that the main control board is disconnected from the ground (default disconnected)
J2	
AVO files	Represents the analog AO output voltage signal, 0-10V
ACO block	Represents the analog AO output current signal, 0-20mA
J4	
PI file	Indicates that the built-in keyboard potentiometer is selected (the default built-in keyboard potentiometer is valid)
PE block	Indicates selection of external keyboard potentiometer
J5	
AVI block	Indicates analog AI input voltage signal, 0-10V
ACI block	Represents analog AI input current signal, 0-20mA

2.8 Precautions for Wiring

①When replacing the motor, the input power of the inverter must be cut off.
②Only when the inverter stops output can the motor be switched or the industrial frequency power supply switched.
③In order to minimize the impact of electromagnetic interference, when the electromagnetic contactors and relays used are close to the inverter, a surge absorption device should be considered.
④Do not connect the AC input power to the output terminals U, V, W of the inverter.
⑤The external control lines of the frequency converter need to be equipped with isolation devices or use shielded lines.
⑥In addition to the shielding, the input command signal wiring should be routed separately, preferably away from the main circuit wiring.
⑦When the carrier frequency is less than 4KHz, the maximum distance between the inverter and the motor should be within 50 meters. When the carrier frequency is greater than 4KHz, the distance should be appropriately reduced. It is best to lay this wiring in a metal pipe.
⑧When the inverter is equipped with peripheral equipment (filter, reactor, etc.), its insulation resistance to ground should be measured first with a 1000-volt megohmmeter to ensure that it is not lower than 4 megohms.
⑨It is not allowed to install phase-advancing capacitors or resistance-capacitance absorption devices at the U, V, and W output terminals of the inverter.
⑩If the inverter needs to be started more frequently, do not turn off the power supply, but use the COM/RUN of the control terminal to start and stop the operation, so as not to damage the rectifier bridge.
⑪In order to prevent accidents, the grounding terminal G must be reliably grounded (the grounding impedance should be below 100Ω), otherwise there will be leakage.
⑫When wiring the main circuit, please follow the relevant provisions of the National Electrical Code for the selection of wiring diameter specifications.

3. Communication protocol

1. RTU mode and format

When the controller communicates on the Modbus bus in RTU mode, each 8-bit byte in the information is divided into two 4-digit hexadecimal characters. The main advantage of this mode is the density of characters transmitted at the same baud rate. Above ASCII mode, each message must be transmitted continuously.

(1) Format of each byte in RTU mode

Coding system: 8-bit binary, hexadecimal 0-9, AF.

Data bits: 1 start bit, 8 data bits (low bit sent first), 1 stop bit , parity bit optional . (Refer to the RTU data frame for the sequence diagram)

Error checking area: Cyclic Redundancy Check (CRC).

(2) RTU data frame bit sequence diagram

with parity

Start	1	2	3	4	5	6	7	8	Par	stop

No parity

Start	1	2	3	4	5	6	7	8	stop

2. Description of reading and writing function codes:

function code	Function Description
03	read register
06	write register

3. Register address

Register function	address
Control command input	2000H
Monitoring parameter reading (d-00 ~ d-31)	1000H～001FH
Communication frequency setting	2001H
User parameter setting (F0.00 ~ F8.06)	0000H～0806H
Manufacturer parameter setting (F9.00 ~ F9.10)	0900H～090AH

4. Parameter address description of communication protocol:

Function Description	address definition	Data Meaning Description	R/W
Communication control command	2000H	0001H: shutdown	W
		0012H: Forward running	
		0013H: forward jog operation	
		0022H: reverse operation	
		0023H: reverse jog operation	
Communication setting frequency address	2001H	Communication setting frequency range is -10000～10000. Note: The communication setting frequency is a percentage relative to the maximum frequency, and its range is -100.00%~100.00%).	W
Communication Control	2002H	0001H: External fault input	W

Command		0002H: Fault reset	
Read run / stop parameter description	2102H	Set frequency (two decimal places)	R
	2103H	Output frequency (two decimal places)	R
	2104H	Output current (one decimal place)	R
	2105H	Bus voltage (one decimal place)	R
	2106H	Output voltage (one decimal place)	R
	2107H	Analog input AI (two decimal places)	R
	2108H	reserve	R
	2109H	current count value	R
	210AH	Motor speed	R
	210BH	Analog output AO (two decimal places)	R
	210CH	reserve	R
	210DH	Inverter temperature (one decimal place)	R
	210EH	PID feedback value (two decimal places)	R
	210FH	PID setting value (two decimal places)	R
	2110H	reserve	R
	2111H	Pulse input frequency	R
	2112H	current fault	R
	2113H	Current timing value	R
	2114H	Input terminal status	R
	2115H	Output terminal state	R
	2116H	BIT0: Run/stop BIT1: Forward / reverse BIT2: Jog BIT3: DC braking BIT4: Reserved BIT5: Overvoltage limit BIT6: Constant speed frequency reduction BIT7: Overcurrent limit BIT8~9:00-zero speed/01-Acceleration/10-Deceleration/11-Constant speed BIT10: Overload pre-alarm BIT11 : Reserved BIT12~13 operation command channel: 00-Panel/01-Terminal/10- Communication BIT14~15 Bus voltage status: 00-Normal/01-Low voltage Protection/10 - overpressure protection	R
	2101H	Bit0: running Bit1: shutdown Bit2: jog Bit3: forward rotation Bit4: reverse Bit5~Bit7: Reserved Bit8: Communication setting Bit9: Analog signal input Bit10: Communication operation command channel Bit11: Parameter lock Bit12: running Bit13: Inching command Bit14~Bit15: reserved	R
Read the fault code description	2100H	00: No exception 01: Module failure	R

		02: Overvoltage 03: Temperature failure 04: Frequency converter overload 05: Motor overload 06: External fault 07~09: Reserved 10: Overcurrent during acceleration 11: Overcurrent during deceleration 12: Overcurrent in constant speed 13: reserved 14: Undervoltage 15: reserved 16: RS485 communication failure 17: Burst failure 18: reserved 19: Dual CPU communication failure 20: reserved 21: Reserved 22: Current detection fault 23: reserved 24: Reserved 25: Output phase loss	

5. 03 Read function mode:

I inquiry information frame format (send frame):

address	01H
Function	03H
Starting data address	21H
	02H
Data (2Byte)	00H
	02H
CRC CHK Low	6FH
CRC CHK High	F7H

Analysis of this section of data:
01H is the inverter address
03H is read function code
2102H is the starting address
0002H is the number of read addresses, and 2102H and 2103H
F76FH is the 16-bit CRC check code
R esponse information frame format (return frame):

address	01H
Function	03H
DataNum*2	04H
Data1[2Byte]	17H
	70H
Data2[2Byte]	00H
	00H
CRC CHK Low	FEH
CRC CHK High	5CH

Analysis of this section of data:
01H is the inverter address
03H is the read function code
04H is the product of the read item*2

1770H is to read the data of 2102H (setting frequency)
0000H is to read the data of 2103H (output frequency)
5CFEH is a 16-bit CRC check code
6. 06H write function mode

I inquire information frame format (send frame):

address	01H
Function	06H
Starting data address	20H
	00H
Data (2Byte)	00H
	01H
CRC CHK Low	43H
CRC CHK High	CAH

Analysis of this section of data:
01H is the inverter address
06H is write function code
2000H is the control command address
0001H is the stop command
43CAH is the 16-bit CRC check code

Response information frame format (return frame):

address	01H
Function	06H
Starting data address	20H
	00H
Number of Data (Byte)	00H
	01H
CRC CHK Low	43H
CRC CHK High	CAH

Data analysis of this section: If the settings are correct, return the same input data.

4. Exception handling

See Table 4-2 for common abnormal phenomena and countermeasures when the inverter is running:

Anomalies		Possible Causes and Countermeasures
The motor does not turn	keyboard no display	Check whether there is a power failure, whether the input power supply is out of phase, and whether the input power line is connected incorrectly
	The keyboard has no display, but the charging indicator light is on	Check whether there are any problems with the wiring and sockets related to the keyboard. Measure the voltage of each control power supply in the machine to confirm whether the switching power supply is working normally. If the switching power supply is not working properly, check whether the incoming (+, -) sockets of the switching power supply are connected. Well, whether the vibration is damaged or whether the voltage regulator tube is normal.
	motor humming	Motor load is too heavy, try to reduce the load
	No exception found	Confirm whether it is in tripping state or not reset after tripping, whether it is in power-off and restart state, whether the keyboard has been reset, whether it has entered program running state, multi-speed running state, specific operating state or non-operating state. You can try to restore to factory settings. value approach.
		Confirm whether the run command is given
		Check whether the operating frequency is set to 0

The motor cannot accelerate or decelerate smoothly	The acceleration and deceleration time setting is inappropriate. Increase the acceleration and deceleration time.
	The current limit value is set too small. Increase the limit value.
	Overvoltage protection operates during deceleration and increases deceleration time.
	The carrier frequency setting is inappropriate, the load is too heavy or oscillation occurs.
	The load is too heavy and the torque is not enough. Increase the torque boost value in V/F mode. If it still cannot meet the requirements, you can switch to simple vector control. At this time, please note that the motor parameters must be consistent with the actual values. If you still cannot meet the requirements, it is recommended to switch to advanced vector control. Control mode, at this time, you still need to pay attention to whether the motor parameters are consistent with the actual values, and it is best to tune the motor parameters.
	The motor power does not match the inverter power. Please set the motor parameters to actual values
	One tow multiple motors. Please change the torque lifting method to manual lifting method
Although the motor can rotate, it cannot adjust the speed	The frequency upper and lower limit settings are inappropriate
	The frequency setting is too low, or the frequency gain setting is too small.
	Check whether the speed regulation method used is consistent with the set frequency given
	Check whether the load is too heavy, whether it is in overvoltage stall or overcurrent limiting state
The motor speed changes during operation	Frequent load fluctuations, minimize changes
	The inverter and motor ratings are seriously inconsistent. Please set the motor parameters to actual values
	The frequency setting potentiometer is in poor contact or the frequency setting signal fluctuates. Change to digital frequency given mode or increase the filter time constant of analog input signal
The motor rotates in the opposite direction	Adjust the phase sequence of output terminals U, V, W
	Just set the running direction (F0.12=1) to reverse
	Direction uncertainty caused by output phase loss, please check the motor wiring immediately

Table 4-2 Common abnormal phenomena and countermeasures

5. Parameter description

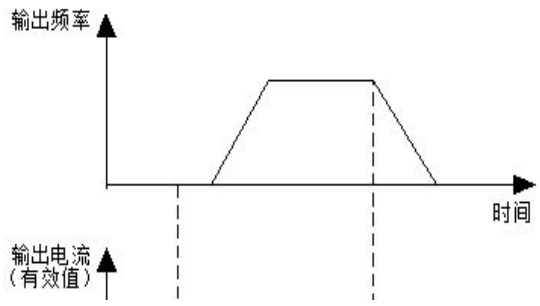
○—Parameters that can be modified in any state ×—Parameters that cannot be modified in running state ◆—Actual detection parameters, cannot be modified ◇—Manufacturer parameters, only modified by the manufacturer, users are prohibited from modifying

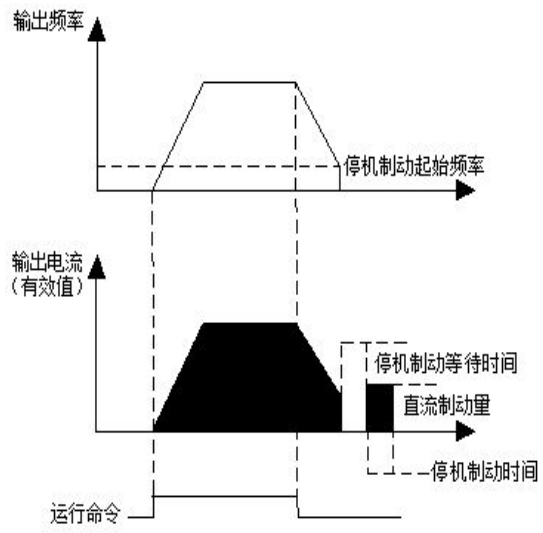
Group F0-Basic operating parameters

function code	name	content	Predetermined area	Factory settings	Change
F0.00	Function macro definition	0: general mode 1: Single pump constant pressure water supply mode 2~3: reserved 4: Engraving machine mode	0～10	0	x

		5～10: Reserved			
F0.01	Motor control method	0: VF control 1: Advanced VF control 2: Simple vector control 3: Advanced vector control 4: Torque control	0～4	0	x
F0.02	Run command channel selection	0: panel running command channel 1: Terminal run command channel 2: Communication running command channel	0～2	0	○
F0.03	Frequency given selection	0: Panel potentiometer 1: Digital given 1, adjusted by the ▲ and ▼ keys on the operation panel 2: Digital reference 2, terminal UP/DOWN adjustment 3: AI analog reference (0～10V/0～20mA) 4: Combined reference 5: reserved 6: Communication setting 7: Reserved Note: When combined reference is selected, the combined reference mode is selected in F1.15.	0～7	0	○
F0.04	output frequency	The maximum output frequency is the highest frequency that the inverter allows to output, and it is the benchmark for acceleration and deceleration settings.	MAX{50.0,【F0.05】}～999.9Hz	50.0Hz	x
F0.05	upper limit frequency	The operating frequency cannot exceed this frequency	MAX{0.1,【F0.06】}～【F0.04】	50.0Hz	x
F0.06	lower limit frequency	The operating frequency cannot be lower than this frequency	0.0～upper limit frequency	0.0Hz	x
F0.07	Lower limit frequency arrival processing	0: Running at zero speed 1: Running at the lower frequency limit 2: Stopping	0～2	0	x
F0.08	Operating frequency digital setting	The set value is the initial value given by frequency digital	0.0～upper limit frequency	10.0Hz	○

F0.09	digital frequency control	LED units: power-off storage 0: store 1: Do not store LED ten digits: shutdown hold 0: hold 1: do not hold LED hundreds: UP/DOWN negative frequency adjustment 0: invalid 1: valid LED thousand digit: PID, PLC frequency superposition selection 0: invalid 1: F0.03+PID 2: F0.03+PLC	0000～2111	0000	○
F0.10	acceleration time	The time required for the inverter to accelerate from zero frequency to the maximum output frequency	0.1～999.9S 0.4～4.0KW 7.5S 5.5～7.5KW 15.0S	Model settings	○
F0.11	deceleration time	The time required for the inverter to decelerate from the maximum output frequency to zero frequency			
F0.12	Running direction setting	0: forward rotation 1: reverse rotation 2: reverse rotation prohibited	0～2	0	○
F0.13	V/F curve setting	0: linear curve 1: Square curve 2: Multi-point VF curve	0～2	0	x
F0.14	Torque boost	Manual torque boost, this setting is a percentage relative to the rated voltage of the motor	0.0～30.0%	Model settings	○
F0.15	Torque boost cut-off frequency	This setting is the boost cutoff frequency point during manual torque boost.	0.0～50.0Hz	15.0Hz	x
F0.16	Carrier frequency setting	For occasions where silent operation is required, the carrier frequency can be appropriately increased to meet the requirements, but increasing the carrier frequency will increase the heat generated by the inverter.	2.0～16.0KHz 0.4～3.0KW 4.0KHz 4.0～7.5KW 3.0KHz	Model settings	x
F0.17	V/F frequency value F1		0.1 ～ frequency value F2	12.5 Hz	x
F0.18	V/F voltage		0.0 ～ voltage value V2	25.0 %	x

	value V1				
F0.19	V/F frequency value F2		Frequency value F1 ~ frequency value F3	25.0Hz	x
F0.20	V/F voltage value V2		Voltage value V1 ~ voltage value V3	50.0%	x
F0.21	V/F frequency value F3		Frequency value F2 ~ motor rated frequency [F4.03]	37.5Hz _	x
F0.22	V/F voltage value V3		Voltage value V2 ～ 100.0%*Uoute (motor rated voltage [F4.00])	75.0%	x
F0.23	user password	Setting any non-zero number will take effect after 3 minutes or power failure.	0～9999	0	○
F0.24	Frequency display resolution selection	0: 0.1Hz 1:1Hz Note: When setting this parameter, be sure to check the maximum output frequency (F0.04), frequency upper limit (F0.05), motor rated frequency (F4.03) and other frequency-related parameters.	0～1	0	○
Group F1-auxiliary operating parameters					
function code	**name**	**Predetermined area**	**smallest unit**	**Factory settings**	**Change**
F1.00	Starting method	LED ones digit: Starting mode 0: Start from the starting frequency 1: DC braking first and then start from the starting frequency 2: Reserved LED ten's digit: power failure or abnormal restart mode 0: invalid 1: start from starting frequency LED hundreds: reserved LED thousands: reserved	0000～0012	00	x
F1.01	Starting frequency		0.0～50.0Hz	1.0Hz	○
F1.02	Starting DC braking voltage		0.0 ～ 50.0 % × motor rated voltage	0.0%	○

F1.03	Starting DC braking time		0.0～30.0s	0.0s	○
F1.04	shutdown mode	0: Deceleration stop 1: Free stop	0～1	0	x
F1.05	Stop DC braking starting frequency		0.0～upper limit frequency	0.0Hz	○
F1.06	Stop DC braking voltage		0.0～50.0%× motor rated voltage	0.0%	○
F1.07	Shutdown DC braking time		0.0～30.0s	0.0s	x
F1.08	Stop DC braking waiting time		0.00～99.99s	0.00s	x
F1.09	Forward jogging frequency setting	Set jog forward and reverse frequency	0.0～50.0Hz	10.0Hz	○
F1.10	Reverse jog frequency setting				
F1.11	jog acceleration time	Set jog acceleration and deceleration time	0.1～999.9S 0.4～4.0KW 10.0S 5.5～7.5KW 15.0S	Model Settings	○
F1.12	Jog deceleration time				
F1.13	jump frequency	By setting the jump frequency and range, the frequency converter can avoid the mechanical resonance point of the load.	0.0～upper limit frequency	0.0Hz	○
F1.14	jump range		0.0～10.0Hz	0.0Hz	○
F1.15	Frequency combination given method	0: Potentiometer + digital frequency 1 1: Potentiometer + digital frequency 2 2: Potentiometer + AI 3: Digital frequency 1+AI 4: Digital frequency 2+AI 5: Digital frequency 1 + multi-speed 6: Digital frequency 2 + multi-speed 7: Potentiometer + multi-speed 8: AI+PLC (superimposed in the same direction) 9: Reserved	0～9	0	x

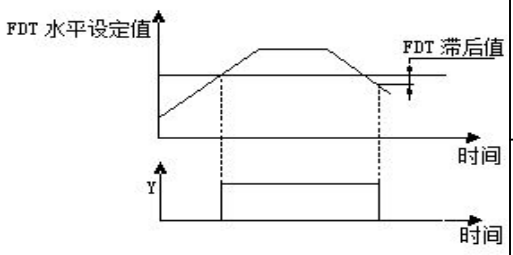
F1.16	Programmable operation control (simple PLC operation)	LED units: PLC enable control 0: invalid 1: Effective LED tens digit: operating mode selection 0: single cycle 1: Continuous loop 2: Keep the final value after a single cycle LED hundred digit: Start mode 0: Restart from the first stage 1: Start from the stage of shutdown (fault) moment 2: Start from the stage and frequency at the time of shutdown (fault) LED thousand digit: power-off storage selection 0: no storage 1: storage	0000～1221	0000	x
F1.17	Multi-speed frequency 1	Set segment speed 1 frequency	- Upper limit frequency ~ upper limit frequency	5.0Hz	○
F1.18	Multi-speed frequency 2	Set segment speed 2 frequency	- Upper limit frequency ~ upper limit frequency	10.0Hz	○
F1.19	Multi-speed frequency 3	Set segment speed 3 frequency	- Upper limit frequency ~ upper limit frequency	15.0Hz	○
F1.20	Multi-speed frequency 4	Set segment speed 4 frequency	- Upper limit frequency ~ upper limit frequency	20.0Hz	○
F1.21	Multi-speed frequency 5	Set segment speed 5 frequency	- Upper limit frequency ~ upper limit frequency	25.0Hz	○
F1.22	Multi-speed frequency 6	Set segment speed 6 frequency	- Upper limit frequency ~ upper limit frequency	37.5Hz	○
F1.23	Multi-speed frequency 7	Set segment speed 7 frequency	- Upper limit frequency ~ upper limit frequency	50.0Hz	○
F1.24	Phase 1 run time	Set the running time of segment speed 1 (the unit is selected by [F1.35], the default is seconds)	0.0～999.9s	10.0s	○
F1.25	Phase 2 run time	Set the running time of segment speed 2 (the unit is selected by [F1.35], the default is seconds)	0.0～999.9s	10.0s	○
F1.26	Phase 3 run time	Set the running time of segment speed 3 (the unit is selected by [F1.35], the default is seconds)	0.0～999.9s	10.0s	○
F1.27	Phase 4 runtime	Set the running time of segment speed 4 (the unit is selected by [F1.35], the default is seconds)	0.0～999.9s	10.0s	○
F1.28	Phase 5 run time	Set the running time of segment speed 5 (the unit is selected by [F1.35], the default is seconds)	0.0～999.9s	10.0s	○
F1.29	Phase 6 run time	Set the running time of segment speed 6 (the unit is selected by [F1.35], the default is seconds)	0.0～999.9s	10.0s	○
F1.30	Phase 7 run time	Set the running time of segment speed 7 (the unit is selected by [F1.35], the default is seconds)	0.0～999.9s	10.0s	○

F1.31	Phase acceleration and deceleration time selection 1	LED units digit: phase 1 acceleration and deceleration time 0~1 LED tens digit: phase 2 acceleration and deceleration time 0~1 LED hundreds digit: phase 3 acceleration and deceleration time 0~1 LED thousands digit: phase 4 acceleration and deceleration time 0~1	0000～1111	0000	○
F1.32	Phase acceleration and deceleration time selection 2	LED units digit: phase 5 acceleration and deceleration time 0~1 LED tens digit: stage 6 acceleration and deceleration time 0~1 LED hundreds digit: stage 7 acceleration and deceleration time 0~1 LED thousands digit: reserved	000～111	000	○
F1.33	Acceleration time 2	Set acceleration and deceleration time 2	0.1～999.9s 0.4～4.0KW 10.0s 5.5～7.5KW 15.0s	10.0s	○
F1.34	Deceleration time 2				
F1.35	Time unit selection	LED ones digit: process PID time unit LED tens digit: simple PLC time unit LED hundreds digit: conventional acceleration and deceleration time unit LED thousand digit: reserved 0: The unit is 1 second 1: The unit is 1 point 2: The unit is 0.1 second	000～211	000	x
F1.36	Forward and reverse dead time	When the frequency converter transitions from forward operation to reverse operation, or from reverse operation to forward operation, it waits for the transition time at the output zero frequency.	0.0～999.9s	0.0	○

Group F2 - Analog and digital input and output parameters

function code	name	Predetermined area	smallest unit	Factory settings	Change
F2.00	AI input lower limit voltage	Set AI upper and lower limit voltage	0.00～【F2.01】	0.00V	○
F2.01	AI input upper limit voltage		【F2.01】～10.00V	10.00V	○
F2.02	AI lower limit corresponding setting	Set the AI upper and lower limit corresponding settings, which correspond to the percentage of the upper limit frequency [F0.05].	-100.0%～100.0%	0.0%	○
F2.03	AI upper limit corresponding setting			100.0%	○
F2.04～F2.07	reserve	-	-	0	◆
F2.08	Analog input signal filter time constant	This parameter is used to filter the AI and panel potentiometer input signals to eliminate the influence of interference.	0.1～5.0s	0.1s	○
F2.09	Analog input anti-shake deviation limit	When the analog input signal fluctuates frequently near a given value, you can suppress the frequency fluctuation caused by this fluctuation by setting F2.09.	0.00～0.10V	0.00V	○

F2.10	AO analog output terminal function selection	0: Output frequency 1: Output current 2: Motor speed 3: output voltage 4: AI 5: reserved	0～5	0	○
F2.11	AO output lower limit	Set the upper and lower limits of AO output	0.00～10.00V/ 0.00～20.00mA	0.00V	○
F2.12	AO output upper limit			10.00V	○
F2.13	Input terminal X1 function	0: The control terminal is idle 1: Forward jogging control 2: Reverse jogging control 3: Forward rotation control (FWD) 4: Reverse control (REV) 5: Three-wire operation control 6: Free stop control 7: External stop signal input (STOP) 8: External reset signal input (RST) 9: External fault normally open input 10: Frequency increase command (UP) 11: Frequency decrease command (DOWN) 13: Multi-stage speed selection S1 14: Multi-speed selection S2 15: Multi-speed selection S3 16: The running command channel is forced to be terminal 17: The running command channel is forced to be communication 18: Stop DC braking command 19: Frequency switching to AI 20: Switch frequency to digital frequency 1 21: Switch frequency to digital frequency 2 22: Reserved 23: Counter clear signal 24: Counter trigger signal 25: Timer clear signal 26: Timer trigger signal 27: Acceleration and deceleration time selection 28: Wobble frequency pause (stop at the current frequency) 29: Wobble frequency reset (back to center frequency) 30: External stop/reset signal input (STOP/RST) 30～ 60: reserved	0～ 6 0	3	x
F2.14	Input terminal X2 function		0～ 6 0	4	x
F2.15	Input terminal X3 function		0～ 6 0	0	x
F2.16	Input terminal X4 function		0～ 60	0	x
F2.17	reserve		-	0	x
F2.18	FWD/REV terminal control mode	0: Two-wire control mode 1 1: Two-wire control mode 2 2: Three-wire control mode 1 3: Three-wire control mode 2 4: Three-wire control mode 3 5: Reserved	0～5	0	x
F2.19	Terminal function detection selection when powering on	0: The terminal running command is invalid when the power is turned on 1: The terminal running command is valid when the power is turned on	0～1	0	x

F2.20	R output setting	0: Idle 1: The inverter is ready for operation 2: The inverter is running 3: The inverter is running at zero speed 4: Shutdown due to external fault 5: Inverter failure 6: Frequency/speed arrival signal (FAR) 7: Frequency/speed level detection signal (FDT) 8: Output frequency reaches the upper limit 9: The output frequency reaches the lower limit 10: Inverter overload pre-alarm 11: Timer overflow signal 12: Counter detection signal 13: Counter reset signal 14: Auxiliary motor 15: Forward rotation 16: Reverse 17: Output indication signal when the output frequency drops to the speed detection level 18 ~ 20: Reserved	0～ 20	5	○
F2.21	reserve		-	0	○
F2.22	R close delay	The delay from the change of relay R state to the change of output	0.0～255.0s	0.0s	x
F2.23	R off delay				
F2.24	Frequency reaches FAR detection range	When the output frequency is within the positive and negative detection width of the set frequency, the terminal outputs a valid signal (low level).	0.0Hz～15.0Hz	5.0Hz _	○
F2.25	FDT level setpoint		0.0Hz ～ upper limit frequency	1 0.0Hz	○
F2.26	FDT hysteresis value		0.0～30.0Hz	1.0Hz	○
F2.27	UP/DOWN terminal modification rate	This function code is to set the frequency modification rate when the UP/DOWN terminal sets the frequency, that is, the frequency change amount when the UP/DOWN terminal and the COM terminal are shorted for one second.	0.1Hz～99.9Hz/s	1.0 Hz /s	○
F2.28	Input terminal pulse trigger mode setting (X1～X4)	0: Indicates level trigger mode 1: Indicates pulse trigger mode Note: X1~X4 correspond to 1H, 2H, 4H, and 8H in hexadecimal order.	0～FH	0	○

F2.29	Valid logic setting of input terminal (X1～X4)	0: Indicates positive logic, that is, the connection between the Xi terminal and the common terminal is valid, and the disconnection is invalid. 1: Indicates reverse logic, that is, the connection between the Xi terminal and the common terminal is invalid, and the disconnection is valid. Note: X1~X4 correspond to 1H, 2H, 4H, and 8H in hexadecimal order.	0～FH	0	○
F2.30	X1 filter coefficient	Used to set the sensitivity of the input terminal. If the digital input terminal is susceptible to interference and causes malfunction, you can increase this parameter to increase the anti-interference ability. However, setting it too large will cause the sensitivity of the input terminal to decrease. 1: Represents 2MS scan time unit	0～9999	5	○
F2.31	X2 filter coefficient		0～9999	5	○
F2.32	X3 filter coefficient		0～9999	5	○
F2.33	X4 filter coefficient		0～9999	5	○
F2.34	reserve		-	0	○
Group F3-PID parameters					
function code	**name**	**Predetermined area**	**smallest unit**	**Factory settings**	**Change**

F3.00	PID function setting	LED ones digit: PID adjustment characteristic 0: invalid 1: positive effect When the feedback signal is greater than the given value of the PID, the output frequency of the inverter is required to decrease (that is, the feedback signal is reduced). 2: negative effect When the feedback signal is greater than the given value of the PID, the output frequency of the inverter is required to increase (that is, the feedback signal is reduced). LED tens digit: PID given quantity input channel 0: keyboard potentiometer The PID given amount is given by the potentiometer on the operation panel. 1: digital setting The PID given amount is given by numbers and set by function code F3.01. 2: Pressure given (MPa, Kg) The pressure is given by setting F3.01 and F3.18. LED hundreds: PID feedback input channel 0: AI 1: reserved LED thousand digit: PID sleep selection 0: invalid 1: normal sleep This method needs to set specific parameters such as F3.10~F3.13. 2: Disturbing sleep The parameter settings are the same as when the sleep mode is selected as 0. If the PID feedback value is within the range of the F3.14 setting value, the sleep delay time is maintained and then the disturbance sleep is entered. When the feedback value is less than the wake-up threshold (PID polarity is positive), it will wake up immediately.	0000～2122	1010	x
F3.01	Given quantity digital setting	Use the keyboard to set the given amount of PID control, this function is valid only when the PID given channel selects digital given (the tens place of F3.00 is 1 or 2). If the tens place of F3.00 is 2, it is used as pressure setting, and this parameter is	0.0～100.0%	0.0%	○

		consistent with the unit of F3.18.			
F3.02	Feedback channel gain	When the level of the feedback channel is inconsistent with the set channel level, this function can be used to adjust the gain of the feedback channel signal.	0.01～10.00	1.00	○
F3.03	Proportional gain P	The speed of PID adjustment speed is set through the two parameters of proportional gain and integral time. If the adjustment speed is required to be fast, the proportional gain must be increased and the integral time must be reduced. If the adjustment speed is slow, the proportional gain must be reduced and the integral time must be increased. Generally, the differential time is not set.	0.01～5.00	2.00	○
F3.04	Integration time Ti		0.1～50.0s	1.0s	○
F3.05	Differential time Td		0.1～10.0s	0.0s	○
F3.06	Sampling period T	The larger the sampling period, the slower the response, but the better the suppression effect on the interference signal, generally it is not necessary to set it.	0.1～10.0s	0.0s	○
F3.07	Deviation limit	The deviation limit is the ratio of the absolute value of the deviation between the system feedback amount and the given amount and the given amount. When the feedback amount is within the deviation limit range, the PID adjustment does not take action.	0.0～20.0%	0.0%	○
F3.08	Closed loop preset frequency	The running frequency and running time of the inverter before the PID is put into operation	0.0～upper limit frequency	0.0Hz	○
F3.09	Preset frequency holding time		0.0～999.9s	0.0s	x
F3.10	Wake-up threshold coefficient	If the actual feedback value is greater than the set value and the frequency output by the inverter reaches the lower limit frequency, the inverter will enter the sleep state (that is, running at zero speed) after the delay waiting time defined by F3.12; this value is Percentage of PID setpoint.	0.0～150.0%	100.0%	○
F3.11	Wake-up threshold coefficient	If the actual feedback value is less than the set value, the inverter will leave the sleep state and start working after the delay waiting time defined by F3.13; this value is the percentage of the PID set value.	0.0～150.0%	90.0%	○

F3.12	sleep delay time	Set sleep delay time	0.0～999.9s	100.0s	○
F3.13	Wake-up delay time	Set wake-up delay time	0.0～999.9s	1.0s	○
F3.14	Deviation between feedback and set pressure when entering sleep	This function parameter is only valid for disturbance sleep mode	0.0～10.0%	0.5%	○
F3.15	Burst detection delay time	Set burst detection delay time	0.0～130.0s	0.0S	○
F3.16	High pressure detection threshold	When the feedback pressure is greater than or equal to this set value, the burst fault "EPA0" will be reported after the F3.15 burst delay. When the feedback pressure is less than this set value, the burst fault "EPA0" will automatically reset; this threshold is for Percentage of fixed pressure.	0.0～200.0%	150.0%	○
F3.17	Low pressure detection threshold	When the feedback pressure is less than this set value, the burst fault "EPA0" will be reported after the F3.15 burst delay. When the feedback pressure is greater than or equal to this set value, the burst fault "EPA0" will automatically reset; this threshold is given to percentage of constant pressure.	0.0～200.0%	50.0%	○
F3.18	Sensor range	Set the maximum range of the sensor	0.00～99.99 (MPa, Kg)	10.00MPa	○

Group F4 - advanced function parameters

function code	name	Predetermined area	smallest unit	Factory settings	Change
F4.0 0	Motor rated power	Motor parameter setting	0. 0 ~ 2000. 0 KW	Model settings	x
F4.0 1	Motor rated voltage		0～500V: 380V 0～250V: 220V	Model Settings	x
F4.0 2	Motor rated current		0 . 1 ～999.9 A	Model Settings	x
F4.03	Motor rated frequency		1.0～999.9Hz	50.0Hz	x
F4.0 4	Motor rated speed		0～9999RPM	Model Settings	x
F4.05	Motor no-load current	Set motor no-load current	0.1 A ~【F4.01】	Model settings	x
F4.06	AVR function	0: invalid 1: Valid throughout the process 2: Invalid only when decelerating	0～2	0	x

F4 .07	Cooling Fan Control	0: Automatic control mode 1: Keep running during power-on process	0～1	0	○
F4.08	Fault automatic reset times	When the number of fault resets is set to 0, there is no automatic reset function and can only be reset manually. 10 means there is no limit to the number of times, that is, countless times.	0～10	0	x
F4.09	Fault automatic reset interval time	Set the automatic fault reset interval	0.5～25.0s	3.0s	x
F4.10 _	Dynamic braking start voltage	If the internal DC side voltage of the inverter is higher than the initial voltage of dynamic braking, the built-in braking unit will act. If a braking resistor is connected at this time, the rising voltage energy inside the inverter will be released through the braking resistor, causing the DC voltage to fall back.	330 ～ 380/660 ～ 80 0V	3 5 0/780V	○
F4.11 _	Energy consumption braking action ratio		10～100%	100%	○
F4.12 _ _	Overmodulation function selection	0: invalid 1: valid	0～1	0	x
F4.13 _ _	PWM mode	0: Full frequency seven bands 1: Full frequency five bands 2: From seven paragraphs to five paragraphs 3: Single-phase asynchronous motor	0～ 3	0	x
F4.14 _ _	slip compensation coefficient	After the asynchronous motor is loaded, the speed will drop, and the use of slip compensation can make the motor speed close to its synchronous speed, so that the motor speed control accuracy is higher. This coefficient is only valid for ordinary V/F and simple vector.	0～200%	100%	x
F4.15 _ _	slip compensation mode	0: Invalid 1: Low frequency compensation Note: This parameter is only valid for advanced V/F	0～1	0	x
F4.16	Motor parameter self-learning	0: invalid 1: Static self-learning (STAR is displayed immediately when starting, and END is displayed after 1S and then goes out)	0～1	0	x
F4.17	Motor stator resistance	After changing the motor rated power F4.17, F4.01, F4.02, F4.04, F4.05, F4.18~F4.20 are automatically updated to the motor default parameters of the corresponding power.	0. 0 0 ~ 200 . 0 0 Ω	Model Settings	○
F4.18	Motor rotor resistance		0.0 0 ～ 200.00 Ω _	Model Settings	○
F4.19	Motor stator and rotor mutual inductance		0.0 0 ~ 200.00mH _	Model settings	○
F4.20	Motor stator and rotor leakage inductance		0.0 0 ~ 200.00mH _	Model Settings	○
F4.21	Speed loop	Function codes F4 . 21 ~ F4 . 26 are valid in	1 ～ 100	30	x

	(ASR1) proportional gain	vector control mode. By setting proportional gain P and integral time I , the speed response characteristics of vector control can be changed.			
F4.22	Speed loop (ASR1) integration time		0.0 1 ~ 10.00S _	0.50	○
F4.23	Switch low frequency		0.0 ～ 10.0Hz	5.0	x
F4.24	Speed loop (ASR2) proportional gain		1 ～ 100	20	○
F4.25	Speed loop (ASR2) integral time		0.0 1 ~ 10.00S _	1.00	○
F4.26	Switch high frequency		【 F4.23 】 ～ 320.0Hz	10.0	x
F4.27	Vector slip compensation	In vector control mode, this parameter is used to adjust the steady speed accuracy of the motor. When the motor is heavily loaded and the speed is low, increase the parameter, otherwise decrease the parameter.	50% ~ 200%	100	○
F4.28	Speed loop filter time constant	Set the speed loop filter time constant	0.000 ～ 1.000S	0.010	○
F4.29	reserve	-	-	0	◆
F4.30	Speed loop torque limit	The setting value is the percentage of the rated current of the motor	0.0%～200.0%	1 7 0.0	○
F4.31	Torque command selection	0: keyboard number given 1: AI 2: reserved	0 ～ 2	0	x
F4.32	Torque digital given	The setting value is the percentage of the rated current of the motor	0.0% ～ 200.0%*motor rated current	150.0	○
F4.33	Torque control forward maximum frequency	It is used to set the forward or reverse maximum operating frequency of the inverter in the torque control mode.	0.0 ~ 3200.0Hz _	50.0	○
F4.34	Torque control reverse maximum frequency		0.0 ~ 3200.0Hz _	50.0	○
F4.35	Torque rise time	The torque rise/fall time defines the time when the torque rises from 0 to the maximum value or falls from the maximum value to 0.	0.0 0 ~ 1.0 0 S _	0.00	○
F4.36	Torque drop time		0.0 0 ~ 1.0 0 S _	0.00	○
Group F5-protection function parameters					

function code	name	Predetermined area	smallest unit	Factory settings	Change
F5.00	Protection settings	LED units: motor overload protection selection 0: invalid 1: valid LED tens: PID feedback disconnection protection 0: invalid 1: protection action and coast to stop LED hundreds: 485 communication failure processing 0: protection action and coast to stop 1: Alarm but maintain status quo operation 2: Alarm and shutdown according to the set method LED thousand digit: shock suppression selection 0: invalid 1: valid	0000～1211	0001	x
F5.01	Motor overload protection coefficient	The motor overload protection coefficient is the percentage of the motor's rated current value to the inverter's rated output current value.	30%～110%	100%	x
F5.02	Under voltage protection level	This function code specifies the allowable lower limit voltage of the DC bus when the inverter is working normally.	50～280/50～480V	180/360V	x
F5.03	Deceleration voltage limit coefficient	This parameter is used to adjust the ability of the inverter to suppress overvoltage during deceleration.	0: off, 1~255	1	x
F5.04	Overvoltage limit level	The overvoltage limit level defines the operating voltage for overvoltage stall protection	350 ～ 400/660 ～ 850V	375/700V	x
F5.05	Acceleration current limit factor	This parameter is used to adjust the inverter's ability to suppress overcurrent during acceleration.	0 : off, 1 to 99	10	x
F5.06	Constant speed current limit coefficient	This parameter is used to adjust the inverter's ability to suppress overcurrent during constant speed.	0 : off, 1 to 10	0	x
F5.07	Current limit level	The current limit level defines the current threshold of the automatic current limit action, and its setting value is the percentage relative to the rated current of the inverter.	50%～200%	160%	x
F5.08	Feedback disconnection detection value	This value is the percentage of the PID given amount. When the PID feedback value continues to be less than the feedback disconnection detection value, the inverter will take corresponding protection actions based on the setting of F5.00. It is invalid when F5.08=0.0%.	0.0～100.0%	0.0%	x
F5.09	Feedback disconnection detection time	After the feedback disconnection occurs, the delay time before the protection action.	0.1～999.9S	10.0s	x
F5.10	Inverter overload pre-alarm level	The current threshold for the overload pre-alarm action of the frequency converter is set as a percentage relative to the rated current of the frequency converter.	0～150%	120%	○
F5.11	Frequency converter overload pre-alarm	The delay time between the frequency converter output current continuously being greater than the overload pre-alarm level amplitude (F5.10) and the output of the	0.0～15.0s	5.0s	x

	delay	overload pre-alarm signal.			
F5.12	Jog priority enable	0: Invalid 1: When the inverter is running, jogging has the highest priority.	0～1	0	x
F5.13	Oscillation suppression coefficient	When motor oscillation occurs, you need to set F5.00 to be valid in thousands, turn on the oscillation suppression function, and then adjust it by setting the oscillation suppression coefficient. Generally, if the oscillation amplitude is large, increase the oscillation suppression coefficient F5.13, F5.14~F5. 16 does not need to be set; if you encounter special occasions, you need to use F5.13~F5.16 together.	0～200	30	○
F5.14	Amplitude suppression coefficient		0～12	5	○
F5.15	Oscillation suppression lower limit frequency		0.0～【F5.16】	5.0Hz	○
F5.16	Oscillation suppression upper limit frequency		【 F5.15 】 ～【F0.05】	45.0Hz	○
F5.17	Wave-by-wave current limiting selection	LED unit digit: select during acceleration 0: invalid 1: valid LED tens digit: select during deceleration 0: invalid 1: valid LED hundreds digit: choose between constant speed 0: Invalid 1: Valid LED thousand digit: dead zone compensation selection 0: invalid 1: valid Note: Dead zone compensation is only valid for selections 3 and 4 of F0.01.	000～ 1 111	1 011	x
F5.18	Output phase loss protection detection coefficient	When the ratio of the maximum value to the minimum value of the three-phase output current is greater than this coefficient, and the duration exceeds 6 seconds, the inverter reports an output current unbalance fault EPLI. This parameter cannot be set too small. It is recommended to set it above 2.00; F5. When 18=0.00, the output phase loss protection is invalid.	0.00 ～20.00	0.00 _	○
F 5 . 19	Instantaneous power failure frequency reduction coefficient	Set instantaneous power failure frequency reduction coefficient	0: The instantaneous stop function is invalid 1～ 9999	0	○
F 5 . 20	Momentary power down frequency reduction point	Set the frequency reduction point for instantaneous power failure	220V: 180～330V 250V 380V: 300～550V 450V	Model settings	x
F5.21	Low frequency carrier automatic adjustment	0: invalid 1: valid	0～ 1	1	x

Group F6-communication parameters					
function code	name	Predetermined area	smallest unit	factory setting	Change
F6.00 _	local address	Set the local address, 0 is the broadcast address .	0～247	1	x
F6 .01	MODBUS communication configuration	LED units: baud rate selection 0: 9600BPS 1: 19200BPS 2: 38400BPS LED tens: data format 0: no parity 1: even parity 2: odd parity LED hundreds: communication response mode 0: normal response 1 : Only responds to the slave address 2: Does not respond 3: The slave does not respond to the free stop command of the host in broadcast mode LED thousand digit: Reserved	0 0 00 ~ 0322	000 0	x
F6.02 _	Communication timeout detection time	If the machine does not receive the correct data signal within the time interval defined by this function code, then the machine considers that there is a communication failure, and the inverter will decide whether to protect or maintain the status quo operation according to the communication failure action mode setting; this When the value is set to 0.0, no RS485 communication timeout detection is performed.	0.1～100.0s	0.0s	x
F6 .03	Local response delay	This function code defines the intermediate time interval during which the inverter ends receiving data frames and sends response data frames to the host computer. If the response time is less than the system processing time, the system processing time shall prevail.	0～200ms	5ms	x
F6.04 _	Proportional linkage coefficient	This function code is used to set the weight coefficient of the frequency command received by the inverter as a slave through the RS485 interface. The actual operating frequency of the machine is equal to the value of this function code multiplied by the frequency setting command value received through the RS485 interface. In linked control, this function code can set the ratio of the operating frequencies of multiple inverters.	0.01～10.00	1.00	○
F6 .0 5	reserve	-	-	0	x
Group F7-Supplementary function parameters					
function code	name	Predetermined area	smallest unit	factory setting	Change

F7.00	Counting and Timing Mode	LED units: counting arrival processing 0: One-week counting, stop output 1: Single week counting, continue to output 2: Cycle counting, stop output 3: Loop counting, continue to output LED tens digit: reserved LED hundreds digit: Timing arrival processing 0: One-week timing, stop output 1: Weekly timing, continue to output 2: Loop timing, stop output 3: Loop timing, continue to output LED thousands digit: reserved	000～303	103	x
F7.01	Counter reset value setting	Set counter reset value	【F7.02】～9999	1	○
F7.02	Counter detection value setting	Set counter detection value	0～[F7.01]	1	○
F7.03	Timing time setting	set timer	0～9999s	0s	○
F7．04～F7．07	reserve	-	-	0	○
F7.08	Swing frequency control	0: Disabled 1: Valid	0～1	0	x
F7.09	swing control	0: fixed swing The swing reference value is the maximum output frequency (F0.04). 1: variable amplitude The swing reference value is a given channel frequency.	0～1	0	x
F7.10	Wobble frequency stop and start mode selection	0: Start according to the state memorized before stopping 1: Restart	0～1	0	x
F7.11	Swing frequency amplitude	Wobble frequency amplitude is the percentage relative to the maximum output frequency (F0.04).	0.0～100.0%	0.0%	○
F7.12	Kick frequency	This function code refers to the amplitude of the rapid decrease when the frequency reaches the upper limit frequency of the swing frequency during the swing frequency process. Of course, it also refers to the rapid increase amplitude after the frequency reaches the lower limit frequency of the swing frequency. This value is the percentage relative to the swing frequency amplitude (F7.11). If it is set to 0.0%, there will be no jump frequency.	0.0～50.0%	0.0%	○
F7.13	Wobble frequency rise	The running time from the lower limit frequency of the swing frequency to the	0.1～3600.0s	5.0	○

	time	upper limit frequency of the swing frequency.			
F7.14	Wobble down time	The running time from the upper limit frequency of the wobble frequency to the lower limit frequency of the wobble frequency.	0.1～3600.0s	5.0	○
F7.15	Swing frequency upper limit frequency delay	Set the upper and lower limit frequency delay of the wobble frequency.	0.1～3600.0s	5.0	○
F7.16	Swing frequency lower limit frequency delay		0.1～3600.0s	5.0	○
F8 group - management and display parameters					
function code	**name**	**Predetermined area**	**smallest unit**	**factory setting**	**Change**
F8.00	Run monitoring main parameter item selection	For example: F8.00=2, that is, select the output voltage (d-02), then the default display item on the main monitoring interface is the current output voltage value.	0～3 1	0	○
F8.01	Shutdown monitoring main parameter item selection	For example: F8.01=3, that is, select the bus voltage (d-03), then the default display item on the main monitoring interface is the current bus voltage value.	0～3 1	1	○
F8.02	Run auxiliary display (only valid for dual display)	For example: F8.02=4, that is, select the output current (d-02), then the default display item on the main monitoring interface is the current output voltage value.	0～3 1	4	○
F8.03	Stop auxiliary display (only valid for dual displays)	For example: F8.03=3, that is, select bus voltage (d-03), then the default display item on the main monitoring interface is the current bus voltage value.	0～3 1	3	○
F8.04	Motor speed display coefficient	It is used to correct the display error of the speed scale and has no effect on the actual speed.	0.01～99.99	1.00	○
F8.05	parameter initialization	0: No operation The frequency converter is in normal parameter reading and writing status. Function code setting value. Whether it can be changed is related to the setting status of the user password and the current working status of the inverter. 1: Restore factory settings All user parameters are restored to factory defaults by model. 2: Clear fault records Clear the contents of fault records (d-19~d-24). After the operation is completed, this function code is	0～2	0	x

		automatically cleared to 0.			
F8 .0 6	reserve	-	0	0	x
GroupF9-manufacturerparetes					
function code	name	Predetermined area	smallest unit	Factory settings	Change
F9.00	Manufacturer password	1～9999	1	****	◇
Group d-monitoring parameter group					
function code	name	scope	smallest unit	Factory settings	Change
d-00	Output frequency (Hz)	0.0～999.9Hz	0.1Hz	0.0Hz	◆
d-01	Set frequency (Hz)	0.0～999.9Hz	0.1Hz	0.0Hz	◆
d-02	Output voltage (V)	0～999V	1V	0V	◆
d-03	Bus voltage (V)	0～999V	1V	0V	◆
d-04	Output current (A)	0.0～999.9A	0.1A	0.0A	◆
d-05	Motor speed (rpm)	0～60000rpm	1 rpm	Model Settings	◆
d-06	Analog input AI(V/mA)	0.00～10.00V/0.00～20.00mA	0.01V/0.01mA	0.00V/mA	◆
d-07	reserve	-	0	0	◆
d-08	Analog input AO(V/mA)	0.00～10.00V/0.00～20.00mA	0.01V/0.01mA	0.00V/mA	◆
d-09	reserve	-	-	0	◆
d-10	PID pressure set value	0.00～10.00V/0.00～99.99(MPa, Kg)	0.01V/(MPa,Kg)	0.00V/(MPa,Kg)	◆
d-11	PID pressure feedback value	0.00～10.00V/0.00～99.99(MPa,Kg)	0.01V/(MPa, Kg)	0.00V/(MPa, Kg)	◆
d-12	current count value	0～9999s	1s	0s	◆
d-13	Current timing value (s)	0～9999s	1s	0s	◆
d-14	Input terminal status (X1-X4)	0～FH	1H	0H	◆
d-15	Output state (R)	0～1H	1H	0H	◆
d-16	Module temperature (° C)	0.0～132.3℃	0.1℃	0.0	◆
d-17	Software upgrade date (year)	2010～2026	1	2023	◆
d-18	Software upgrade date (month, day)	0～1231	1	0109	◆
d-19	second fault code	0～19	1	0	◆
d-20	The most recent fault code	0～19	1	0	◆

d-21	Output frequency at the latest fault (Hz)	0.0～999.9Hz	0.1Hz	0.0Hz	◆
d-22	Output current at the latest fault (A)	0.0～999.9A	0.1A	0.0V	◆
d-23	(V) at the time of the latest fault	0～999V	1V	0V	◆
d-24	Module temperature at the time of the latest failure (° C)	0.0～132.3℃	0.1℃	0.0℃	◆
d-25	Accumulated running time of inverter (h)	0～9999h	1h	0h	◆
d- 2 6	Inverter status	0～ FFFF H BIT0: run/stop BIT1: reverse/forward BIT2: inching BIT3: DC brake BIT4 : reserved BIT5: overvoltage limit BIT6: constant speed reduction BIT7: overcurrent limit BIT8~9: 00- Zero speed/01-Acceleration/10-Deceleration/11-Constant speed BIT10: Overload pre-alarm BIT11 : Reserved BIT12~13 Operation command channel: 00-Panel/01-Terminal/10- Reserved BIT14~15 Bus voltage status: 00-Normal /01-low voltage protection/10-overvoltage protection	1H	0H	◆
d- 27	Software version	1.00～99.99	0.01	2.00	◆
d- 28	Power model	0.10～99.9KW	0.01KW	Model Settings	◆
d- 29	Motor estimated frequency	0.0~Maximum output frequency [F0.04] Note: The motor operating frequency is converted from the motor’ s estimated speed.	0.1Hz	0.0Hz	◆
d -30	Output torque	-200～+200%	1%	0%	◆
d-31	Input voltage (V)	0～999V	1V	0V	◆

Group E - Fault Codes

error code	name	Possible causes of failure	Troubleshooting	code name
E0C1	Overcurrent during accelerated operation	Acceleration time is too short	Extend acceleration time	1
		Inverter power is too small	Choose a frequency converter with a large power rating	
		V/ F curve or torque boost	Adjust V/ F curve or torque boost	

E0C2 _	Overcurrent during deceleration operation	Deceleration time is too short	Extend deceleration time	2
		Inverter power is too small	Choose an inverter with a large power level	
E0C 3	Overcurrent during constant speed operation	Grid voltage is low	Check input power	3
		Load mutation or abnormality	Check load or reduce sudden change in load	
		Inverter power is too small	Choose a frequency converter with a large power rating	
EHU1	Overvoltage during acceleration operation	Abnormal input voltage	Check input power	4
		Restarting a rotating motor	Set to start after DC braking	
EHU 2	Overvoltage during deceleration operation	Deceleration time is too short	Extend deceleration time	5
		Abnormal input voltage	Check input power	
EHU 3	Overpressure during constant speed operation	Abnormal input voltage	Check input power	6
EHU 4	Overpressure at shutdown	Abnormal input voltage	Check supply voltage	7
ELU0	Undervoltage during operation	The input voltage is abnormal or the relay does not close.	Check the power supply voltage or contact the manufacturer for service	8
ESC1	power module failure	The inverter output is short-circuited or grounded.	Check motor wiring	9
		Inverter instantaneous overcurrent	See overcurrent countermeasures	
		Abnormal control board or serious interference	Seek service from manufacturers	
		Power device damaged	Seek service from manufacturers	
E-OH	radiator overheating	Ambient temperature is too high	reduce ambient temperature	10
		Fan damaged	replace the fan	
		Air duct blocked	dredging channel	
EOL1	Inverter overload	V/ F curve or torque boost setting	Adjust V/ F curve and torque boost amount	11
		Grid voltage is too low	Check grid voltage	
		Acceleration time is too short	Extend acceleration time	
		Motor load is too heavy	Choose a higher power inverter	
EOL 2	Motor overload	V/ F curve or torque boost	Adjust V/ F curve and torque boost	12
		Grid voltage is too low	Check grid voltage	
		Motor stall or load sudden change is too large	check load	
		Motor overload protection factor setting is incorrect	Correctly set the motor overload protection coefficient	
EE F	External device failure	External device fault input terminal closed	Disconnect the external device fault input terminal and clear the fault (pay attention to check the cause)	13
EPOF	Dual CPU communication	CPU communication failure	Seek service from manufacturers	14

	failure			
E PID	PID feedback disconnected	PID feedback circuit is loose	Check feedback connections	15
		The feedback amount is less than the disconnection detection value	Adjust detection input threshold	
E 485	RS485 communication failure	Does not match the baud rate of the host computer	Adjust baud rate	16
		RS485 channel interference	Check whether the communication connection is shielded, whether the wiring is reasonable, and if necessary, consider connecting the filter capacitor in parallel	
		Communication timeout	Retry	
ETUN	Motor tuning failure	Motor parameter setting error	Reset the motor parameters	17
ECC F	Current sense failure	Current sampling circuit failure	Seek service from the manufacturer	18
		Auxiliary power failure		
EEEP	EEPROM read and write errors	EEPROM failure	Seek service from the manufacturer	19
EPLI	Output phase loss protection	Output U, V, W have phase loss	Check output wiring	20
EPA0	burst pipe failure	The feedback pressure is less than the low pressure detection threshold or greater than or equal to the high pressure detection threshold	Check the feedback connection or adjust the detection high and low voltage threshold	twenty two

6. Macro parameter setting instructions

Function macro definition	Setting parameters	Automatically modify parameter list	Commissioning steps, terminal wiring
Single pump constant pressure water supply mode	F0.00=1	F0.02=1; F0.06=20.0; F3.00=1021; F3.01=5.0; F3.12=5.0; F8.00=11; F8.01=11; F8.02=10; F8.03=10.	Step1: Determine the sensor feedback type. The AI factory default input voltage feedback signal (AVI) can also be selected through the DIP switch to input current feedback signal (ACI); Step2: Terminal wiring. If the pressure gauge outputs 0~10V, connect the signal wire of the pressure gauge to AI, and the other two wires connect to +10V and GND; if the output is 0~20mA, connect the signal wire of the pressure gauge. On the AI, the other wire is connected to 10V; Step3: Parameter initialization (F8.05=1); Step4: Set the sensor range (F3.18); Step6: Set the target pressure, which can be set by parameter F3.01, or by the up and down keys on the keyboard.
engraving machine mode	F0.00=4	F0.02=1; F0.04=400.0; F0.05=400.0; F1.17=100.0; F1.18=150.0; F1.19=200.0; F1.20=250.0; F1.21=300.0; F1.22=350.0; F1.23=400.0; F2.15=13; F2.16=14; F2.17=15; F2.19=1; F4.03=400.0.	Step1: terminal wiring, the two wires of the switch (control start and stop) are connected to X1 and GND; Step2: Parameter initialization (F8.05=1); Step3: Function macro selection (F0.00=4).

Chapter 7 Care and Maintenance

7.1 Daily care and maintenance

Changes in the environment in which the inverter is used, such as the influence of temperature, humidity, smoke, etc., as well as factors such as the aging of internal components of the inverter, may cause various malfunctions of the inverter. Therefore, daily inspections and regular maintenance must be carried out on the inverter during storage and use.

When the inverter is running normally, please confirm the following items:

①Check whether the motor has any abnormal sound or vibration.

②Check whether the inverter and motor are overheating.

③Is the ambient temperature too high?

④Is the load current value the same as usual?

⑤Is the cooling fan of the frequency converter running normally?

7.2 Regular care and maintenance

①Regular maintenance

In order to make the inverter work normally for a long time, regular maintenance and maintenance must be carried out according to the service life of the electronic components inside the inverter. The service life of the electronic components of the frequency converter varies according to the different conditions of use. The maintenance period of the inverter shown in the table below is only for reference when the user uses it.

Device name	Standard Replacement Years
cooling fan	2 to 3 years
electrolytic capacitor	4 to 5 years
A printed circuit board	5 to 8 years

②Regular maintenance

Depending on usage conditions, users can conduct regular routine inspections of the inverter in the short term or every 3 to 6 months to eliminate potential faults and ensure long-term, high-performance and stable operation.

Routine inspection content:

①If the control terminal screws are loose, tighten them with a screwdriver of appropriate size.

②Whether the main circuit terminals are in poor contact, whether there are signs of overheating at the connection of cables or copper bars, screws, etc.

③Whether the power cables and control wires are damaged, especially whether the outer insulation layer is cracked or cut.

④Whether the connection between the power cable and the cold-pressed joint is loose, and whether the insulating bandage at the connection is aging or falling off.

⑤Clean up the dust on printed circuit boards, air ducts, etc., and take anti-static measures when cleaning.

⑥For the insulation test of the frequency converter, all connections between the frequency converter and the power supply and between the frequency converter and the motor must be removed first, and all main circuit input and output terminals must be reliably short-circuited with wires before testing to ground. Please use a qualified 500V megohmmeter (or the corresponding voltage range of the insulation tester); do not use a faulty meter. It is strictly forbidden to only connect a single main circuit terminal to conduct an insulation test to the ground, otherwise there will be a risk of damaging the inverter. Never perform an insulation test on the control terminals, otherwise the inverter will be damaged. After the test is completed, remember to remove all wires shorting the main circuit terminals.

⑦ If the insulation test is performed on the motor, the wires connecting the motor and the inverter must be completely disconnected before testing the motor separately. Otherwise, there is a risk of damaging the inverter.